alberta's species at risk program

Sprague's Pipit
Conservation Management Plan

2010-2015

Alberta Species at Risk Conservation Management Plan No. 2

Government of Alberta

Sprague's Pipit

Conservation Management Plan

2010-2015

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PREFACE

Albertans are fortunate to share their province with a diversity of wild species. A small number of these species are classified as Species of Special Concern because they have characteristics that make them particularly sensitive to human activities or natural events. Special conservation measures are necessary to ensure that these species do not become Endangered or Threatened.

Conservation management plans are developed for Species of Special Concern to provide guidance for land and resource management decisions that affect the species and their habitat. These plans are intended to be a resource tool for Sustainable Resource Development - Fish and Wildlife Division (SRD-FWD) and for provincial and regional land and resource management staff.

Conservation management plans provide background information including species biology, threats to species and habitat, and inventory/monitoring history. Plans also provide a goal, objectives, and actions (management recommendations). Management recommendations are typically categorised into inventory and monitoring needs; habitat management and conservation; education and communication; and additional management considerations as required.

Conservation management plans are generally prepared by an SRD-FWD biologist who has been designated as the provincial species lead. Writers from outside SRD-FWD are occasionally sought to prepare plans for species for which there is little in-house expertise. In order to ensure accuracy and utility, each plan is reviewed by a species expert and a designated provincial representative from SRD Forestry Division and/or Lands Division. In some cases there may be additional reviewers from staff, industry, and other agencies.

Conservation management plans are internal guidance documents. They are implemented under the guidance of the species lead and are "living" documents that can be revised at any time as required. Conservation management plans are more succinct than the recovery plans that are prepared for Endangered and Threatened species and do not involve participation of a multi-stakeholder team.

Conservation management plans are approved by the Director of Wildlife and/or Directory of Fisheries. Plans will be reviewed annually by the species lead and updated if necessary, and a more in-depth review will occur five years after a plan's approval.

EXECUTIVE SUMMARY

Sprague's pipit (*Anthus spragueii*) is a small, ground nesting songbird that is endemic to the Canadian prairies and parts of the Great Plains of the United States. In Alberta, the species is found almost exclusively on native prairie. Sprague's pipit has been designated a *Species of Special Concern* in Alberta due to its large historic population decline and potential for continuing habitat alteration, which is one of the primary threats to this species.

This plan recommends various ways to conserve Sprague's pipit populations and habitat, including: supporting ongoing surveys; conserve native grasslands through stewardship, beneficial land practices, and integration of pipit recovery needs into prairie conservation programs and land-use planning processes; educate landowners and other key audiences about pipit ecology and habitat requirement; and promote a native grassland retention policy for public lands.

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1.0 INTRODUCTION

Sprague's pipit (*Anthus spragueii*) has been designated a *Species of Special Concern* in Alberta due to its large historic population decline and potential for continuing habitat alteration (ESCC 1999) The bird is considered Threatened on a national level as a result of significant declines and evidence of range contraction at its peripheries (COSEWIC 2000) It is federally protected under the *Migratory Bird Convention Act* and the *Species at Risk Act*. There is currently no additional protection for *Species of Special Concern* under Alberta's *Wildlife Act*.

The Alberta Endangered Species Conservation Committee's Initial Conservation Action Statement (1999) for Sprague's pipit recommends the following:

1. Sprague's pipit should be identified as a 'Sensitive Species' in Alberta, and
2. Alberta Environment (now "Sustainable Resource Development") should develop appropriate mechanisms to identify and implement conservation and management of 'Sensitive Species' in general, and Sprague's pipit in particular,

This management plan addresses the second recommendation as it relates to the conservation of Sprague's pipit.

1.1 Breeding Biology, Distribution and Habitat Requirements

Sprague's pipit is a small (15-17 cm, 23-25 g) songbird that is endemic to the Canadian prairies and parts of the Great Plains of the United States (Figure 1). It is a ground-nesting species that is rarely seen when on the ground and is difficult to observe from a close range. The males of this species are often detected by hearing their distinctive, slurred, descending notes: "zeer, zeer, zeer zeer zeer zeer" during their aerial display (Robbins 1998).

Sprague's pipit has a close association with native prairie (Davis et al. 1996, Robbins and Dale 1999). In Alberta, the species is found almost exclusively on native range (Owens and Myres 1973, Prescott and Wagner 1996), although it occasionally inhabits tame grasslands in Saskatchewan and Manitoba (Wilson and Belcher 1989, Davis et al. 1996, Robbins and Dale 1999). In native prairie areas, the pipit is one of the most common songbirds, preferring areas with intermediate vegetation height and litter depth (Prescott and Wagner 1996, Sutter 1996, Madden et al. 2000). In Alberta, the highest concentration of pipits can usually be found in moderately to non-grazed native range (Karasiuk et al. 1977, Prescott and Wagner 1996).

Sprague's pipits arrive on the breeding grounds in late April or early May. Females lay three to six eggs between late May and early July, and incubate for 10-12 days. The female is primarily responsible for tending to the chicks (Robbins and Dale 1999). Less than one in three nesting attempts is successful, with depredation of eggs or young being the most usual cause of failure. Females will attempt to re-nest within two weeks of a nest failure. Their new nest is usually located within 150 m of the failed nest (Davis 2009). Productivity might also be reduced by brown-headed cowbirds (*Molothrus ater*),

which have been known to parasitize up to 18% of nests (Davis and Sealy 2000). Some pairs may initiate a second nest after successful completion of the first (Robbins and Dale 1999), although the extent that this occurs is not well known (Davis 2009).

Sprague's pipits are mostly insectivorous, with seeds comprising less than 3% of the adult diet during the breeding season. The preferred food of adults early in the breeding season is beetles, with grasshoppers assuming a greater importance as the season progresses. Grasshoppers constitute most of the nestling diet, along with lepidopteran larvae, arachnids, and hymenopterans (Maher 1974). Sprague's pipits undergo a pre-basic molt (partial in juveniles) in late July and August (Pyle 1997). By late September, most individuals have departed for the wintering grounds in the southern United States and northern Mexico (Robbins and Dale 1999).

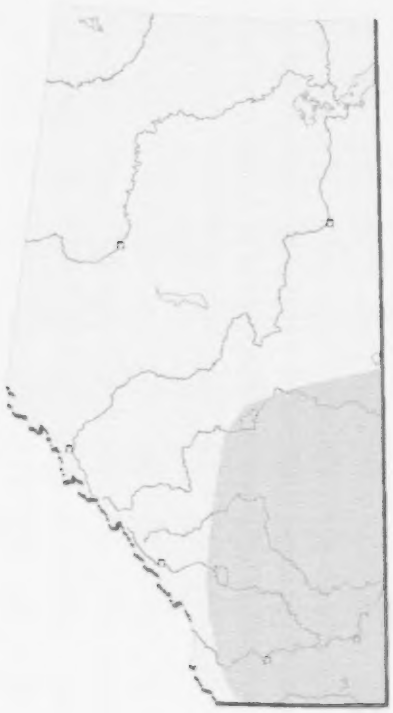

Figure 1. Sprague's pipit summer range in Alberta.

1.2 Threats to the Population

1.2.1 Habitat Loss

The Sprague's pipit is dependent on native grassland that is lightly to moderately grazed (Robbins and Dale 1999). Approximately 75% of native prairie in Canada has been lost to human cultivation and settlement (Bradley and Wallis 1996). Although the rate of habitat loss has slowed in recent years, a shift to increased cultivation due to higher grain

prices coupled with more resource extraction in the area has lead to a significant amount of native rangeland disappearing throughout the range of the Sprague's pipit (Prescott and Davis 1999). In Alberta, the species does not usually occupy non-native grasslands such as hayfields, tame pastures, and 'permanent' cover planted through conservation programs such as the Permanent Cover Program, or the North American Waterfowl Management Plan (Hartley 1994, Prescott and Murphy 1999, Davis 2003). However, Sprague's pipit occasionally use these habitats in the eastern part of its national range.

1.2.2 Habitat Fragmentation

Sprague's pipits are an area-sensitive species, and usually occur in patches of habitat greater than 150 ha in size (Davis 2004, Davis et al. 2006). Furthermore, there is evidence that the species avoids roadsides (Sutter et al. 2000) and are negatively influenced by areas with a high density of gas wells (Weins et al. 2008). Additionally, Davis (2004) and Koper et al. (2009) found that an increasing amount of edge habitat may be detrimental to Sprague's pipit because of their association with interior habitats. It has also been found that rates of cowbird parasitism on Sprague's pipits were higher in smaller habitat fragments (Davis and Sealy 2000). It is apparent that fragmentation of native prairie by roads, pipelines and other disturbances reduces habitat suitability for Sprague's pipits, and may greatly increase the effects of habitat loss alone (Koper et al. 2009).

1.2.3 Haying

Haying during the nesting season may substantially lower the nesting success of grassland birds by reducing vegetative cover and thereby exposing nests to predators and inclement weather or through the actual mechanical destruction of nests and adults. Haying is less common on native grassland than it is on introduced forages, but the practice may pose some threat to nesting Sprague's pipits (Dale et al. 1997). This is especially true in areas to the east of Alberta, where pipits sometimes use non-native habitats (Robbins and Dale 1999).

1.2.4 Burning

Fire has adverse short-term effects on Sprague's pipit abundance and occurrence (Pylypec 1991). However, several studies have shown pipit populations to exceed pre-burn levels several years after the fire (Maher 1973, Berkey et al. 1993, Madden 1996). Habitat quality may be improved by burning as it slows encroachment by woody vegetation and invasive species as well as reduces litter build-up (Dechant et al. 2003). Sprague's pipit, and other grassland birds, may therefore be limited by reduced fire frequencies that have accompanied human settlement (Environment Canada 2008).

1.2.5 Pesticides

If a Sprague's pipit was to directly ingest agricultural pesticides through its prey, or if food supplies are limited during a critical period of the breeding season, they could be negatively impacted (Martin et al. 2005, Environment Canada 2008). The scope of these impacts on the birds' survival and reproduction is unknown.

1.2.6 Noise Pollution

Noise created from industrial activities has been shown to cause a decrease in pairing success in breeding birds by reducing the effectiveness of male song (Habib et al. 2007). With an increase in oil and gas activities in the grassland region there is the potential for the negative influence of noise pollution on breeding birds. However, the impact of industrial noise on Sprague's pipit is currently unknown.

1.2.7 Climate Change

Climate change models predict an increase in severe weather events (e.g. drought and flooding) in areas such as the southern Alberta prairie ecosystem (Intergovernmental Panel on Climate Change 2001). Drought conditions can affect the pipit by reducing habitat quality through lower prey abundance and grass cover. Excessively wet conditions can cause nests to be flooded, or young of the year to die from starvation or exposure. The effects of these weather patterns may be limited to a local scale and their impact at a population level is unknown.

1.3 Inventory and Monitoring

Sprague's pipits have rarely been the subject of specific monitoring efforts in the past. However, distribution and population trends are monitored by the North American Breeding Bird Survey, including in Alberta, and elsewhere within its range (Sauer et al. 2005). The species has also been well represented in avian surveys conducted over a wide range of southern and central Alberta, such as the Grassland Bird Monitoring Program (Dale et al. 2003), North American Waterfowl Management Plan habitat surveys (Prescott et al 1993, Prescott and Bilyk 1996), and long-billed curlew inventories (Saunders 2001). Many of these studies have also confirmed the species' strong preference for native grasslands that are lightly grazed. Ongoing research in Saskatchewan is looking at various life history traits of the Sprague's pipit, including nesting habitat requirements, survival of nests, juveniles and adults, diet, territory size and re-nesting propensity (S. Davis, pers. comm.).

Inventory efforts have led to various population estimates for Sprague's pipits in Alberta, and elsewhere. Such estimates are relevant to the conservation of species at risk, because status designations (e.g., Endangered, Threatened) are based, in part, on population size (International Union for Conservation of Nature 2001, Committee on the Status of Endangered Wildlife in Canada 2009). Prescott (1997) stated that the species undoubtedly occurs in the "tens or hundreds of thousands in the province". Subsequent analysis of Breeding Bird Survey data from 1990-1999 by Davis (unpubl. data) suggests that the Alberta population is approximately 440,000 individuals. Rich et al. (2004) suggest that the North American population of Sprague's pipit is approximately 900,000 birds, with 80% of this total being within Canada.

2.0 GOALS AND OBJECTIVES

The following goals and objectives are based on the current information available on the Sprague's pipit. Additionally, they reflect the goals that are outlined in the national recovery strategy in order to remain consistent across the range of the Sprague's pipit in Canada (Environment Canada 2008).

2.1 Goals

1. Return Sprague's pipit populations to the mean abundance levels experienced between 1980 and 1989 throughout its historic range in Alberta.

2. Conserve and maintain remaining native prairie within the historic range of the species in Alberta.

2.2 Objectives

1. Inventory and monitoring: Support ongoing surveys and related research.

2. Habitat management: Conserve native grasslands through stewardship, beneficial land practices, and integration of pipit recovery needs into prairie conservation programs and land-use planning processes; and follow timing and setback guidelines during critical time periods.

3. Education and communication: Educate landowners and other key audiences about pipit ecology, habitat requirements, habitat management strategies and recovery strategies.

4. Regulation and policy: Develop and promote a native grassland retention policy for public lands that are leased, sold or traded in Alberta.

3.0 MANAGEMENT ACTIONS

3.1 Inventory and Monitoring

As mentioned, the distribution and trend of Sprague's pipit populations in Alberta are well monitored by the Breeding Bird Survey and other initiatives. Continuation and enhancement of these surveys will be important in determining the future distribution, trends, and size of Sprague's pipit populations in Alberta.

The close association of Sprague's pipit with native grasslands in Alberta is well understood (Prescott and Wagner 1996, Robbins and Dale 1999, Davis et al. 1999), as is the value of moderate grazing in maintaining habitat quality for the species (Robbins and Dale 1999). However, the impact of other anthropogenic alterations to native grasslands is less well understood. Specifically, the role of oil and gas activities, and fragmentation of native prairie that results from various industrial, agricultural and other human activities has only recently received attention. It is known that Sprague's pipits are area-sensitive, and avoid areas with a high ratio of edge habitats (Davis 2004, Koper and

Schmiegelow 2006). Koper et al. (2009) further determined that Sprague's pipit populations may be declining in part because edge effects greatly magnify effects of habitat loss in southern Alberta. Additional research on the effects of development on Sprague's pipit is underway (S. Davis, pers. comm.). Support and encouragement of these studies and incorporation of their findings into land-use planning will be a useful way to ensure the proper management of prairie landscapes for Sprague's pipits and other grassland wildlife in Alberta.

3.2 Habitat Management

Sprague's pipit is a widespread breeding species in southern Alberta, occurring through the entire Grassland Natural Region and the majority of the Parkland Natural Region; although in much lower densities. A potential protective measure would be a voluntary stewardship program where landowners pledge to conserve the grasslands for Sprague's pipit or to manage their resource in a way that limits the impact on the bird. Additionally, habitat may be protected through conservation easements or land purchases that allow landowners to retain control of their land, but have certain restrictions on the activities that occur on the land.

The range of the pipit, which exceeds 123,000 km^2, in conjunction with the species' tendency to shift its breeding distribution in response to annual changes in climate and habitat condition (Robbins and Dale 1999), makes it unfeasible to implement habitat conservation or securement that is site-specific. Therefore, the best option for habitat conservation is on a broad scale through policies and practices that prevent the loss of native grasslands to other land uses, or that maintain existing grasslands in a condition suitable for breeding by Sprague's pipits (Environment Canada 2008). The following practices would prove beneficial to Sprague's pipits:

1. Maintain large, contiguous blocks of habitat to minimize edge effects that promote nest predation and cowbird parasitism.
2. Minimize fragmentation of existing habitat through judicious placement of linear disturbances such as pipelines and roads.
3. Reclaim disturbed grasslands with native cultivars.
4. Promote grazing practices that allow at least 50% carryover of vegetation, and that minimize grazing during the nesting period (15 May to 15 July). These practices may include rotational or rest-rotational grazing, moderate to low stocking rates and other approaches.
5. Encourage the use of fire as a range management tool, to reduce litter accumulation and shrub encroachment.
6. Reduce or eliminate the use of insecticides that lower food availability and may have toxic side effects to birds.
7. Maintain healthy rangelands, with the understanding that a mosaic of grazing disturbances (healthy-unhealthy) will benefit a variety of wildlife species including Sprague's pipits.

In general, these habitat protection measures are advocated and practiced (to varying degrees) by a number of conservation groups for habitat protection, and by industry groups for responsible range management.

Finally, assist the national recovery team in identifying and conserving critical habitat for Sprague's pipit in Alberta.

3.2.1 Timing and Setback Recommendations

Existing provincial land use guidelines addressing timing windows (April 15 to July 15) and setback distances (100 m from existing nest sites) need to be consistently applied, and revised as better information becomes available. ASRD-FWD and Lands Management staff should use the Prairie and Parkland Sensitive Species Setback Distances and Timing restrictions for land use applications on both private and public lands (ASRD-FWD 2009).

3.3 Education and Communication

The song of Sprague's pipit is one of the most distinctive sounds of the prairie. However, vocalizations are delivered during aerial displays, and the species is almost impossible to observe at close range. Therefore, Sprague's pipit is virtually unrecognized by landowners and the public. The profile of the species should therefore be elevated by inclusion in communications with the public, industry and landowners. Preparation and production of brochures in the current Alberta Species at Risk series would be an important tool for communicating the conservation needs of Sprague's pipit.

Communication with industry, especially regarding timing and setback guidelines, is important in managing Sprague's pipit and decreasing the disturbance on the species.

3.4 Regulation and Policy

Government policy on the conversion of native grassland on public lands should be reviewed and updated to protect all existing areas of native prairie. An Alberta government policy to ensure retention of remaining intact native grasslands on provincial public lands should be created through a collaborative effort with ASRD and other agencies with interest in grassland conservation. This should also prevent selling or trading away native grasslands as these are essential for the Sprague's pipit and many other wildlife.

Wherever there are opportunities, native prairie should be restored. Because the Sprague's pipit may forage in cultivated areas, but requires native cover for nesting, native prairie restoration may benefit the species even in areas of primarily cultivated land.

4.0 SUMMARY

The key to the conservation of Sprague's pipits in Alberta, and elsewhere within its breeding range, is the provision of suitable breeding habitat. Accordingly, management efforts must aggressively focus on preventing the further loss of these habitats, and on

ensuring the appropriate quality of the existing grasslands. Such efforts would have benefits for a broad range of prairie flora and fauna that depend on similar habitats. Many of these species are already at risk in Alberta, or in Canada as a whole.

This management plan will be reviewed in five years, and may be updated prior to that time if new relevant information becomes available. The review will be lead by FWD, in consultation with researchers, participating agencies, and industry.

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List of Titles in the Alberta Species at Risk Conservation Management Plan Series
(as of September 2010)

No. 1 Long-toed Salamander Conservation Management Plan, 2010-2015.

No. 2 Sprague's Pipit Conservation Management Plan, 2010-2015.

No. 3 Long-billed Curlew Conservation Management Plan, 2010-2015.

No. 4 Harlequin Duck Conservation Management Plan, 2010-2015.